

SOUTHEND LOCAL BOARD.

REPORT

ON

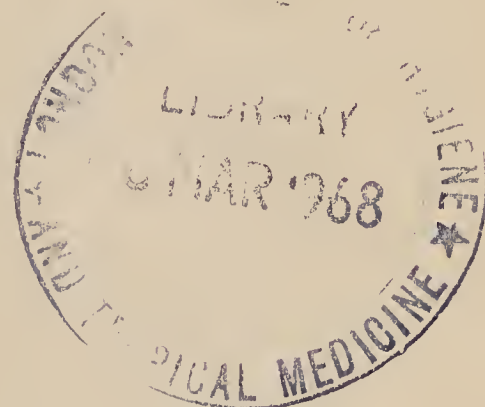
THE SANITARY CONDITION OF SOUTHEND-ON-SEA.

BY

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MARCH, 1888.



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SOUTHEND LOCAL BOARD.

EXPLANATORY STATEMENT.

IN December, 1887, and January, 1888, various statements were made and published by the Rev. Dr. Gregg, not only reflecting in very severe terms upon the sanitary condition of the town of Southend and the district of the Local Board, but deliberately ascribing the blame for its alleged insanitary state to the wilful neglect of the Board in the exercise of the statutory powers which they possess; all the allegations were, however, quite general in their terms, and gave no particulars or details which would enable the Board to investigate the grounds of complaint.

The Board, feeling that, from the position more or less public which Dr. Gregg holds, the grave assertions made by him ought not to pass unnoticed, applied to him to furnish them (not necessarily for publication) with such information as he might have, so that they might make inquiry and apply any remedy which might be found necessary or possible.

Dr. Gregg having failed to supply any such information the Board determined to employ an expert to inspect and report to them upon the district, and they engaged for this purpose Mr. Shirley F. Murphy, of Queen Anne Street, Cavendish Square, a gentleman who was for many years Medical Officer of Health for one of the largest of the

London districts, and who has since been employed as a Medical Inspector by the Local Government Board and as a Commissioner by the Secretary of State for the Home Department.

Mr. Murphy's instructions from the Board were "to thoroughly and minutely investigate and report on the sanitary condition of their district, especially in the directions indicated by the charges [of Dr. Gregg], and in doing so not to hesitate for a moment in pointing out any circumstances from which in your opinion neglect by this Board or any of its officers may be inferred." Every officer of the Board was enjoined to give him every information and assistance he might require, and he was invited, if in collecting information he should meet with any obstacles or reticence, to make any such remarks thereon as he might think proper.

It is, perhaps, unnecessary to add that even apart from these instructions Mr. Murphy's qualifications already alluded to preclude all doubts as to his thorough ability and strict impartiality, and the Board hope that his report will absolutely set at rest any suspicions of unhealthiness which Dr. Gregg's charges may have raised.

WILLIAM GREGSON,

Clerk to the Board.

SOUTHEND, 1st May, 1888.

REPORT

ON THE

SANITARY CONDITION OF SOUTHEND.

THE Urban Sanitary District of Southend is conterminous with the civil parish of Prittlewell, forming part of the sub-registration district of the same name.

Before 1866 the urban district formed part of the district of the Rochford Union. Since that year it has been governed separately by the Southend Local Board.

The area of the Board's jurisdiction is 3,440 acres, situated on the south coast of Essex, and at the mouth of the Thames. The eastern portion of the southern boundary of the district is some 10 to 15 feet above Ordnance datum, but northward and westward the land rises to a height of 100 feet or more. The soil consists of brick earth and sand overlying the London clay and forming a porous stratum 30 to 35 feet or more in depth in the higher parts of the district.

The more populous parts of the district are the town of Southend (St. Johns), situated on the coast, Prittlewell (St. Mary's), an old village a mile or so inland and to the north of Southend, and Porter's Town (All Saints) a group of houses situated somewhat between the two, and which by its own extension, and that of Southend, has become

practically a suburb of the latter. The rest of the area of the district is agricultural and sparsely inhabited.

The census report of 1881 shows that the population of the parish of Prittlewell amounted in that year to 7,979 persons, of whom 213 were resident in ships and barges, the remaining 7,766 living in 1,470 inhabited houses, in the proportion of 5·3 persons to a house. At the same time the number of uninhabited houses was 160, and 50 houses were in process of construction.

I learn from Messrs. Bigsby and Miller, collectors of rates, that the number of inhabited houses at the present time may with correctness be assumed to be 2,000, which would give a population of 10,600 persons on the assumption that there are 5·3 inhabitants per house.

Past History.

In considering the present condition of the district, it is necessary to bear in mind its past history. Formerly Southend was largely a cesspool town; the drainage of certain houses situated in the eastern part of the town discharged through a private sewer into the sea, and the drains of houses in the Marine Parade discharged upon the beach; but it was not until the Cliff Town Estate was built over in 1855-60, that any important part of the town had a sewer system. In 1870, however, a complete sewerage system was begun for the rest of the populous part of the district, and bye-laws as to new streets and buildings were made under the Local Government Act of 1858. These bye-laws were much less perfect than those which are now in force.

Those relating to house drainage required that the drains should consist of glazed stoneware or fire-clay pipes, or other suitable material, and that they should be connected with the sewers in such manner as the Local Surveyor might direct; that they should be laid with water-tight joints, and beneath houses they should be embedded in and surrounded by well puddled clay.

Further, drains were to be ventilated, but there was no provision requiring that whenever possible they should not be laid beneath houses, that they should be trapped before their connection with the sewers, that the ventilation of the drain should be such as to give opportunity for the passage of a current of air through the drains, and that sink and bath wastes should not be directly connected with the drain. Later, when in 1881 bye-laws were made under the Public Health Act, 1875, the Local Authority empowered itself to enforce these requirements.

Before, however, the present bye-laws existed, nearly 1,700 houses were wholly or partially constructed, and only those which have been erected since that date have been subject to the provisions of the last bye-laws; this number is not in excess of three or four hundred.

At the present time the houses are situated on fairly wide roads, and with the exception of a group of old wooden houses on the east of the town of Southend, and of certain old houses in Prittlewell, present a clean and orderly appearance and seem to be in a good state of repair. They are provided with through ventilation, and have open space in the rear in accordance with the requirements of the bye-laws. Present Condition.

In Southend (St. John's) and Porter's Town (All Saints), the drains of all but seven houses are connected with the sewers, and it is anticipated that in a few weeks the connections between the drains of these houses and the sewers will be completed. In Prittlewell, as yet, all house owners have not availed themselves of the opportunities they now possess of abolishing cesspools, and connecting their house drains with the sewers which the Authority have provided for this purpose. House Drainage.

A return showing the position as to drainage of houses in the more populous parts of the district, prepared for me

by Mr. Whur, the Sanitary Inspector, shows that of 1,978 houses, 1,568 have their drains connected with the sewer, 287 might be, but are not yet connected, while for 123 the opportunity for such drainage does not exist.

The bye-laws of the Local Authority relating to drainage are not applicable to the drains of all houses which had been formerly erected, and only the mode of communication between the house drain and the sewer is subject to regulation by the Local Board.

The fact that many house drains have not been subject to bye-laws, that others have only been subject to the bye-laws of 1870, and that before the present bye-laws were made, from $\frac{8}{10}$ ths to $\frac{9}{10}$ ths of the houses were already built, has had its effect upon the manner of construction of house drainage in the Urban district.

An inspection of houses in the district shows that the district has the great advantage that in only a small proportion of houses is the drain situated beneath the house. A return prepared for me by the Sanitary Inspector shows indeed that but 18·7 per cent. of the houses are in this condition. This is a matter of much importance; for there is no reason for assuming that house-drains in the Southend Sanitary district are better laid or more perfectly jointed than in other parts of the country; indeed, so far as I have been able to judge, they are subject to the same imperfections in this respect that are found in house-drainage elsewhere. The condition of such drains outside the house is a matter of much less moment than when they are so placed that emanations therefrom can enter the interior of the building.

The trapping of the house-drain before its connection with the sewer appears only to have been enforced in regard to the drains of those houses erected since the bye-laws of 1881 came into operation, but since that date to have been uniformly enforced.

The ventilation of house-drains and soil-pipes is more general. Before 1870 no drain-ventilation appears to have been required, but under the bye-laws of that year rain water pipes were permitted to serve for this purpose. Later, under the bye-laws of 1881, ventilation of the drains of newly-built houses has been effected by special shafts or by ventilation of the soil-pipe. The provision of a lower ventilation opening near to the trap of the sewer required by the bye-laws of 1881 has, however, been less regularly enforced. Houses, therefore, with drains ventilated in these different ways are to be found in the district; while there exist houses in some numbers built before the time of bye-laws where no provision for drain-ventilation whatever appears to have been made by the house owners. In many houses, however, constructed in former years ventilation has since been effected as the result of the action of the authority. Occasionally the method is in detail open to criticism. In certain instances the size of the ventilating-pipe is insufficient, while in other exceptional cases the proximity of its open end to windows is such as to be undesirable.

In the majority of the houses the water-closet is situated immediately in the rear of the house, and approach to it is by way of the yard. In better class houses there is also a watercloset situated in the interior of the house, but provided with external ventilation. This indeed is true for all water-closets in the district of the Urban Authority except certain houses on the Cliff-town Estate, and numbering, I am told forty-five. In these houses the position of the upper water-closet is highly objectionable, situated in the centre of the house, and approached from a staircase leading from the first floor, the only ventilation with which it is provided is into the roof. Water-closets

The apparatus varies in accordance with the date at which the house was built. In some of the older houses the objectionable container closet and D trap are to be found.

For houses erected since 1881 these have been prohibited by the Board's bye-laws, and no single instance was found in which this provision of the bye-laws had not been enforced.

A water supply has been provided for the large majority of water-closets. This is always the case in the better houses, in cottages only were found water-closets without water supply. Many of these were nevertheless clean, but in a few instances the pans were found to be dirty and offensive. The water supply to water-closets is always from a service cistern and in no case was a closet found to be supplied directly from the water main.

Sink and bath
wastes.

In every instance in which houses were inspected which have been erected since the bye-laws of 1881 have been in force, the sink and bath wastes have been properly disconnected from the house drain, and have been made to discharge over trapped gulleys situated outside the house. Moreover the disconnection of these wastes has been effected in a large number of houses built before that date. This work, however, is not yet completed, and in the older parts of the town particularly are to be found instances of connection between the waste pipe and the drain. In some cases the trap to the waste is of the old bell variety, affording, where the waste is connected with the drain, no sufficient security against the admission of air from the drains and sometimes the sewers into the interior of the house.

Rain-water
pipes.

The use of rain water pipes for the ventilation of drains is a less satisfactory method than when the soil pipe or a special shaft is used for this purpose. In certain houses not of recent date, a balcony is drained by a pipe directly connected with the main drain, with the result that air from the drain escapes within two feet of, and at the level of, the bottom of the window. Such arrangements are due to the absence of sufficient powers under bye-laws at the time of the erection of these houses.

Four sewers serve for the drainage of Southend, Porter's Sewerage. Town and Prittlewell, and have a total length of $11\frac{3}{4}$ miles. The western portion of the town is drained by the Hamlet outfall sewer, which discharges some 3,000 feet from the shore into the Leigh Swatch, the central portion is drained by the Pier outfall sewer also into the Leigh Swatch, at a distance of about 5,000 feet from the shore, while the lower or old part of the town drains into a sewer which discharges at a distance of 300 feet from the shore; the drains of houses in Scott's Villas and East Cottages in their rear, as well as of some houses in the old town, discharge into the sea through a sewer special to these houses, about 150 feet from the shore.

The sewers appear to be well constructed, and speaking generally in capacity are equal to the present requirements of the district, but in 1887 both the Pier sewer, and that receiving the drainage of Scott's Villas, failed to carry off their contents.

The facts deserve to be stated. In August, 1887, during an exceptional rainfall, a few houses situated in the High Street and in the Marine Parade were flooded. To prevent further accident of this kind, two new gulleys were fixed in the London Road, three gulleys disconnected from the sewer in the same road, and one new gulley was fixed in the White Gate Road. The surface water passing into these six gulleys was then diverted into adjoining fields instead of being conveyed through the High Street sewer, and with a view of further relieving the High Street sewer, a twelve-inch overflow pipe has been fixed in the manhole at the top of Royal Hill. In order to relieve the Pier outfall sewer during exceptional heavy rainfall, I am told, it is proposed* to lay an eighteen-inch storm water-drain from the manhole at the junction of Grove Terrace and Grove Road to an existing brick culvert on the Royal

* While this report is in progress this storm-water drain has been already nearly completed.

Hill. The flooding of houses in the Marine Parade appears to have been due at the same time to the Board's work-people having left open a flap tidal valve situate near the junction of the Marine Parade sewer with the Pier outfall sewer, as the result of which the tide entered the Marine Parade sewer and flooded a few of the houses.

The flooding of Scott's Villas and East Cottages took place on August 3rd, 1887, and was found to be due to the choking of the sewer receiving the sewage from these houses. The sewer had been regarded as private property, but has since been taken over by the Board, who have had it thoroughly cleansed; this accident has not repeated itself, and I learn it is now proposed to fix a flap valve on to the sewer of East Cottages to prevent the backing up of sewage from Scott's Villas.*

The levels of yards of the lowest houses in connection with the different sewers have been taken by Mr. Dodd, the Board's Surveyor, with the following result:—

On the Pier outfall sewer, 12·0 feet above ordnance datum.				
On the Hamlet	„	30·0	„	„
On the Old Town	„	10·0	„	„

The ordinary waterline of spring tides is 10 feet, and that of the highest tide known is 14·50 feet above ordnance datum. To prevent the backing up of sewage at these times, all the sewers are provided with flap traps, which are said, with the exception noted, to have hitherto proved sufficient, but it will be seen that the Pier outfall and the Old Town sewers are from their levels those most calculated to give rise to flooding from tidal influence. Only about twenty houses on the Pier outfall sewer, however, are situated at the level stated above. This sewer, in fact, drains the whole of Upper Southend and Prittlewell, and the level of the yards of the lowest of these houses is 60 feet above ordnance datum.

Ventilation of
sewers.

The outfalls of the pier and hamlet sewers are always

* It should be stated that this flap has been fixed since this report was written.

under water, and those of the lower town at all periods but low tide. At these times the air in the sewers is necessarily subject to pressure, and the most free ventilation is therefore required. The Local Authority, yielding to the solicitations of inhabitants, has closed many of the surface sewer ventilators, placed in the roads, and has provided air-shafts carried above the roofs of houses where opportunity has been presented. There are now forty-three such shafts, each measuring six by four inches, six in connection with the Hamlet outfall sewers, five in connection with the Old Town outfall sewers, and thirty-two serving for the ventilation of the Pier outfall sewer. In view of the strong necessity for the free ventilation of sewers, I am unable to regard this amount of ventilation as sufficient without more ventilation at the road levels than now exists. It must be borne in mind that many house drains have direct communications with sewers, and that but a small amount of pressure in the drain is sufficient to overcome that in traps situated in houses. As evidence of the pressure which is now exerted against the trapping water, I may mention that the removal of a bell-trap from a sink waste connected with a house drain, admitted air from the drain with such force that a lighted candle at a distance of some eight inches from the sink was extinguished. I am told by the Board's Surveyor that it is now the practice to provide ventilating gratings at the road level for all new sewers at every change of direction or of gradient in the line of sewer, and it is by further ventilation rather than by the closing of ventilating openings that I believe the Board could best meet complaints as to nuisance from such gratings.

The water for domestic purposes is supplied by the Southend Waterworks Company from two wells, about 900 feet in depth, drawing an ample and wholesome water supply from the chalk. The supply to houses is constant, and is laid on directly to the house, or in certain instances

Water
Supply.

to stand pipes which serve for groups of cottages. Drinking water is drawn in the very large majority of houses directly from the mains, and is not received through cisterns, and but few houses receive water from a cistern which at the same time supplies a water-closet.

The process of closing wells at the instigation of the Authority has been continuous since the Company's water was made available, and I am informed by the Southend Waterworks Company that 1,752 houses in the district of the Local Board are now supplied with the Company's water. The houses still drawing water from local wells are situated mostly in Prittlewell and in the outlying neighbourhood. Some of these wells must be regarded with some suspicion, and the serious outbreak of enteric fever in 1879 affords much reason for the inhabitants who have the opportunity to draw their supplies from the Company's mains.

In one house in Prittlewell the well supplying water is but ten feet distant from a privy cesspool, in another the well is twenty feet from a cesspool, in a third the parents of three children who died in the outbreak referred to, still draw their supplies from the same well as that in use at the time of their children's illness.

The Local Board have made every effort to induce the inhabitants of Prittlewell to use the Company's water, and have in 1882 exercised the powers conferred upon them by the 62nd section of the Public Health Act, by contracting with the Water Company for the supply of houses in that part of their district. Proceedings have since been instituted with regard to these houses with a view to bringing about the desired change.

Slaughterhouses and cowsheds were inspected, and were found in fairly satisfactory condition. The only exception which could be taken to these premises was as to the standard of cleanliness maintained in a few of them.

Slaughter-
houses and
cowsheds.

As a rule milk is stored in the shops or adjoining Dairies. premises. The Authority have not yet made bye-laws under the Contagious Diseases (Animals) Act which has recently become law.

Yard paving does not seem to be enforced by the Paving. Authority. The need for it is chiefly evident in those cottages where a distance has to be traversed to reach the water-closet. Street paving is being carried on actively at the present time in the public road. The condition of many private roads shows the necessity for this work to be extended to them.

The old brick and wood dust-bin is that found in Dust-bins. Southend. The situation of some of these receptacles in houses of older date is placed for convenience of access nearer to houses than is desirable. In houses built since 1881 the distance between the dustbin and the dwelling rooms has been under control of the bye-laws of that year. In many instances the lid had been removed. Undue accumulation of dust was rarely found.

For the purposes of their district the Southend Local Administration. Board engage the services of a Medical Officer of Health and a Sanitary Inspector, part of whose time only is required to be devoted to the service of the Board. As a matter of fact, however, the whole of the latter officer's time is given to his duties, and this is evidently not in excess of the requirements of the district in view of its size and population. A Surveyor is also in the service of the Board, upon whom devolves the duty of examining the plans of all new buildings, the duty of inspecting, with a view to seeing that the requirements of the bye-laws are complied with, as well as that of the direction of dust removal, road cleansing, the paving of roads and footpaths, the construction of sewerage, &c. It is fast becoming necessary for

this officer to be assisted in the important duty of inspecting houses in course of construction.

There is no system of notification of infectious diseases, and this is much needed. It may be hoped that Parliament will during the present session give facilities to the Local Authority to obtain the power of requiring such information to be given to the Medical Officer of Health. Cases of infectious disease are removed to the infectious disease hospital at Rochford, a distance of four miles, by an ambulance belonging to the institution, the Sanitary Authority paying an annual contribution for this purpose. Infected clothing and bedding is sent to the Rochford Workhouse to be disinfected by heat in an oven specially constructed for that purpose; and the disinfection of houses is done by the Sanitary Inspector.

House dust is removed and roads are cleansed by the Board's Officers. The arrangements for dust removal are for the two dust carts belonging to the Board to systematically call at all houses for dust until each house has been visited. The frequency with which each house is thus visited depends upon the season; but I am told that the average period of interval between successive collections is about two weeks.

With a view to considering the death rates of the Southend urban district, it is necessary to estimate the population correctly. An estimated population can never be more than approximately correct, and this is especially true for Southend. The usual method is to assume that the proportion of population per house at the last census has been maintained since, and that the number of inhabited houses at the present time is the surest guide to the existing population. Assuming that Southend has now 5·3 persons in each inhabited house, the population amounts to 10,600. This would give a birth rate for 1887 of 25·4 per 1000 of population, whereas in 1881

the birth-rate was equal to 34.2. Either the constitution of the population has altered or the number of inhabitants is not now equal to 5.3 persons per house. It is probable that the population has in recent years been largely added to by adults engaged in such occupation, as letting lodgings, and who do not add to the birth-rate, and for all practical purposes therefore it will be more correct to assume that the population has maintained the same proportion to each house it had in 1881.

In order to lessen any error in the calculation of death rates due to an excessive estimate of the number of persons, no account has been taken of the persons resident in ships and barges, these amounting, in the census year 1881, to 213. On this basis the death-rates for recent years are approximately as follows :—

Year.	Total deaths.	Death-rates.
1884	133	14.8
1885	182	19.3
1886	151	15.4
1887	153	15.0

If from the above the deaths of visitors are excluded and the deaths added of persons usually resident in the district, but dying in the Rochford Union, the following death rates would be obtained.

Year.	Total deaths.	Death-rates.
1884	120	13.3
1885	162	17.2
1886	137	13.9
1887	131	12.8

This is indeed the only fair computation which can be made, viz., the calculation of the death rates of residents upon the resident population.

For the purposes of comparison, the death rates of the three Eastern Counties are given, but are necessarily not corrected in the above sense.

Year.	Essex.	Suffolk.	Norfolk.
1884	18·8	18·1	19·3
1885	19·2	17·7	18·7
1886	19·0	18·7	19·4
1887	Not yet published.		

The following are the death rates of other sea-side towns, &c, in the ten years 1871-80.

Towns.	Death Rates.
Whitby	19·60
Scarborough	19·50
Erpingham, including Cromer .	18·19
Mutford, including Lowestoft .	17·39
Yarmouth	22·94
Dover ,	17·90
Hastings	17·49
Eastbourne	14·19
Brighton	20·46

In considering the death rates from special diseases, the difficulty presents itself that the figures with which we are obliged to deal are too small for conclusions to be drawn from the rates thus calculated. It may, however, be said generally that with a population proportionate to that of the Urban District, the deaths from enteric fever in the Eastern Counties during the years 1884-86 have ranged from 1 to 4, whereas in Southend they have varied between 2 and 6, or exclusive of visitors, 2 and 4. From scarlet fever the deaths in the Eastern Counties have been proportionately 0·5 to 2, and in Southend 1 to 4. The deaths from diphtheria ranged in the Eastern Counties from 1 to 4, while in Southend

from 1 to 3, or exclusive of visitors, not more than 1 in any of these years.

In order to obtain more accurate knowledge of the amount of prevalence of cases of infectious diseases in the district of the Urban Sanitary Authority, I have asked from all the medical men in practice in the locality for a list of those cases of enteric fever, diphtheria, and scarlet fever which came under their notice during recent years. This information has been kindly supplied to me by all but one.

The following table contains a summary of the returns :—

HOUSES INVADED.

Year.	Enteric Fever.	Diphtheria.	Scarlet Fever.
1884	7	2	6
1885	9	0	10
1886	26	2	4
1887	16	3	14

Considering in the first instance the cases of enteric fever it is obvious that no proper investigation can now be made into the causes of this disease in 1884 and 1885, the length of time which has elapsed, and the imperfection mentioned in the footnote, render this impossible.

It may, however, be stated that two of the cases of 1885 appear to be related to each other ; the first of these had been nursed by her mother, who subsequently sickened with the

In addition to the above, a case of infectious disease, of which the nature was not recorded, occurred in 1884 and another in 1887. The statement as to 1885 is imperfect owing to one of the informants having lost his case book for that year. So as to test the amount of inaccuracy in the above statement owing to the objection of one of the medical practitioners to give the information required, it may be stated that of the total number of deaths registered in these years, 638 in number, he himself certified to only 2, or 0·31 per cent., the absence of this information is therefore probably not important.

same disease. No definite cause can be assigned for the first case, and no condition of the dwelling-house could be held responsible for it.

An examination of other houses invaded during the same year led generally to the same conclusion.

The water-closets were mostly situated outside the houses, the drains were not beneath the houses, the sink wastes were disconnected from the drains, the water was in all cases received from the Company's mains, and, further, the milk supplies afforded no indication of the cause.

The unusual prevalence of this disease in 1886 is more suggestive of some special cause, and the cases occurring in this year deserve to be considered in some detail.

No. A. Park Street.—Father of family had been working in Chatham, in September during two weeks, and took to his bed three weeks after his return, had been ailing for some days previously. Disease probably contracted in Chatham. Later, his son, aged 15 was attacked, and was nursed by his mother, who herself suffered from enteric fever in March, 1887.

No. B. St. John's Road.—A child who was ailing on arrival at Southend.

No. C. St. John's Road.—A child who, with her mother, stayed in the house with a lady suffering from enteric fever.

No. D. Clifton Terrace.—A lady who was ailing with this disease when she arrived at Southend, and who subsequently died. She had been nursing her husband who had the same disease in London. While he was himself ailing with his disease, he made a visit to this house.

No. E. Royal Terrace.—A lady came to Southend while ill with enteric fever.

No. F. Pleasant Road.—A gentleman who contracted his illness in London.

Owing to removals no sufficient information could be received concerning four cases.

Apart from those referred to, there remain 16. The facts as to these last are important.

The water supply may at once be eliminated from suspicion of being a cause; all but one house received water company's water, and certainly no general contamination of this supply would be likely to be so limited in its effects, and no pollution of a local main would account for the distribution of the cases which occurred. Further, the distribution of houses in relation to sewers gave no suggestion as to cause. An examination of the condition of houses occupied by the sufferers afforded no reasonable explanation of the majority. In half the number no drain was situated beneath the house, and in several the water-closet was also situated outside. In many instances the arrangements of drains and drain ventilation fell short of the requirements of existing bye-laws, and in one house the mouth of a ventilation pipe was found in objectionable proximity to a bedroom window, but the sufferers had not occupied that room.

One circumstance, however, deserves to be mentioned as a possible and even probable cause of the special prevalence of enteric fever during the year 1886. Of the 16 houses referred to, the inmates of 11 drank milk received in whole or in part, from the same vendor. His proper proportion of cases of any illness occurring in the district is less than one in 14, and as a matter of fact, in the year before and after the one in question, he had supplied but one-eighth of the persons contracting their disease in Southend, and which could not be traced to an antecedent case.

How far an infected milk supply could account for the illness of other persons than those known to receive their milk from an infected source, it is difficult to say; for it is the custom of milk-carriers when on their rounds to buy

milk from each other when their own supplies run short, and thus the effects of such a supply may be more reaching than any evidence will show; for milk vendors keep no record of these transactions.

In 1887 there were sixteen cases of enteric fever. Of these one contracted his illness in London; another in Shoeburyness; for a third it is doubtful if he contracted his illness in Southend or elsewhere. No information could be obtained concerning two, owing to removal. A sixth was the wife of a man and the mother of a boy who suffered from this disease the latter part of the previous year; a seventh was a lad resident in a house where the same disease had also occurred the year before.

For the rest no definite cause can be assigned. It has, however, already been stated that in August the flooding of houses in the High Street occurred and two persons in this locality were attacked with enteric fever—the one (the basement of whose house was flooded) in the middle of September; the other on August 26th. In another house a stopped drain had been suspected to be the cause; but the exact date of this occurrence could not be fixed. Both the watercloset and drain were situated outside the house, and a case of enteric fever was said to have existed in this house at some previous date.

Concerning the other houses, it may be said generally that, although they did not in their drainage arrangements comply with the requirements of existing bye-laws, having been built antecedent to the time when these were made, yet no obvious cause could be found for the occurrence of the illnesses.

Conclusion.

In pursuance of the instructions given me I beg to state that I have considered the sanitary condition of Southend, in relation to the statements made by Dr. Gregg.

These statements are of a general character, and the exact meaning which must attach to them is not always obvious, but I may say that I have failed to find evidence that there has been "a perpetual perennial endemic of typhoid fever during the last three years." With the exception of Dr. Gregg, the medical men practising in Southend have made a return to me of the cases of this disease which have come under their notice during this period, and it affords no evidence of such an occurrence.

Further I can find no reason for the statement that the town has been "as it were saturated with typhoid or enteric fever."

The statement that the "culpable neglect of the Local Board" has been responsible for the deaths from typhoid fever in 1886, being six times greater than in 1883, I believe to be equally unfounded.

In the foregoing report I have endeavoured to state accurately the conditions which I found to exist in Southend, and as the result of my inspection I am led to regard Southend as having from a health point of view very considerable advantages. It possesses in the first instance a sufficient supply of wholesome water, and a system of sewerage, which, subject to what has already been said, meets the requirements of the town. The town is moreover in the favourable position that more than four-fifths of its houses have no drain beneath them, and the work of bringing old houses up to the standard of houses erected in more recent times and under recent legislation, has made considerable progress. This work no doubt is not finally completed, and the continued efforts of the Sanitary Authority are required for this purpose, but Southend already in regard to house drainage and drain ventilation bears favourable comparison with many other places. The Local Board have shown their regard for the health interest of the town by the

adoption of an excellent code of bye-laws, and have enforced them in a fairly satisfactory manner. The lowness of the death-rates is probably due very much to these circumstances.

It is within the power of householders more than within that of the Local Board to ensure that houses built before these bye-laws were made, are as free from objection as those which have been erected since.

SHIRLEY F. MURPHY.

March, 1888.